Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for controlling one or more temperature dependent optical properties of a structure, the method comprising:

annealing at least a portion of a photonic band-gap structure, <u>the annealing having at least a warming stage for a first controlled period of time, a heating stage for a second controlled period of time, and a cooling stage for a third controlled period of time</u>; and

oxidizing the at least a portion of the photonic band-gap structure during the annealing to alter at least one temperature dependent optical property of the photonic band-gap structure.

2. (Original) The method as set forth in claim 1 wherein the temperature dependent optical property of the photonic band-gap structure is made to be substantially insensitive to temperature changes.

3. (Original) The method as set forth in claim 1 wherein the photonic band-gap structure is a microcavity.

4. (Original) The method as set forth in claim 3 wherein the microcavity comprises two Bragg mirrors separated by at least one defect layer.

5. (Original) The method as set forth in claim 2 wherein the property is a reflectance spectra of the photonic band-gap structure.

6. (Previously Presented) A method for controlling one or more temperature dependent optical properties of a structure, the method comprising:

heating at least a portion of a photonic band-gap structure; and

oxidizing the at least a portion of the photonic band-gap structure during the heating to alter at least one temperature dependent optical property of the photonic band-gap structure, the property comprising a reflectance spectra of the photonic band-gap structure which has a maximum shift of about +/- 0.5 nm for a temperature change up to about 100 degrees Centigrade.

7. (Original) The method as set forth in claim 1 wherein the oxidizing further comprises oxidizing the photonic band-gap structure in at least one of an atmosphere of N_2 and an atmosphere of O_2.

8. (Canceled).

9. (Previously Presented) The method as set forth in claim 1 wherein the annealing further comprises heating the photonic band-gap device to a temperature of at least 300 degrees Celsius.

10. (Currently Amended) A system for controlling one or more temperature dependent optical properties of a structure, the system comprising:

an annealing system that anneals at least a portion of a photonic band-gap structure, <u>the annealing system having at least a warming stage for a first controlled period of time, a heating stage for a second controlled period of time, and a cooling stage for a third controlled period of time</u>; and

an oxidizing system that oxidizes the at least a portion of the photonic band-gap structure during the annealing to alter at least one temperature dependent optical property of the photonic band-gap structure.

11. (Original) The system as set forth in claim 10 wherein the temperature dependent optical property of the photonic band-gap structure is made to be substantially insensitive to temperature changes.

12. (Original) The system as set forth in claim 10 wherein the photonic band-gap structure is a microcavity.

13. (Original) The system as set forth in claim 12 wherein the microcavity comprises two Bragg mirrors separated by at least one defect layer.

14. (Original) The system as set forth in claim 11 wherein the property is a reflectance spectra of the photonic band-gap structure.

15. (Previously Presented) A system for controlling one or more temperature dependent optical properties of a structure, the system comprising:

a heating system that heats at least a portion of a photonic band-gap structure; and

an oxidizing system that oxidizes the at least a portion of the photonic band-gap structure during the heating to alter at least one temperature dependent optical property of the photonic band-gap structure, the property comprising a reflectance spectra of the photonic band-gap structure which has a maximum shift of about +/- 0.5 nm for a temperature change up to about 100 degrees Centigrade.

16. (Previously Presented) The system as set forth in claim 10 wherein the oxidizing system oxidizes the at least a portion of the photonic band-gap structure in at least one of an atmosphere of N_2 and an atmosphere of O_2.

17. (Cancelled).

18. (Previously Presented) The system as set forth in claim 10 wherein the annealing system heats the photonic band-gap device to a temperature of at least 300 degrees Celsius.

19. (Currently Amended) A photonic band-gap device comprising:

two or more first silicon layers; and

two or more second silicon layers, wherein each of the first silicon layers adjacent one of the second silicon layers forms a period and wherein each of the second silicon layers has a higher porosity then the adjacent first silicon layer;

wherein two or more of the periods adjacent each other form a stack, wherein the stack is annealed and oxidized to alter at least one temperature dependent optical property of the stack, <u>wherein the stack is annealed by at least warming the stack for a first controlled period of time, heating the stack for a second controlled period of time, and cooling the stack for a third controlled period of time</u>.

20. (Original) The device as set forth in claim 19 wherein the temperature dependent optical property of the photonic band-gap structure is made to be substantially insensitive to temperature changes.

21. (Original) The device as set forth in claim 19 further comprising at least one defect layer between a pair of the stacks with the defect layer and stacks joined together.

22. (Original) The device as set forth in claim 21 wherein each of the stacks has about a quarter wavelength optical thickness.

23. (Original) The device as set forth in claim 21 wherein the defect layer comprises one of about a quarter wavelength optical thickness and any multiple of the about quarter wavelength optical thickness.

24. (Original) The system as set forth in claim 20 wherein the property is a reflectance spectra of the photonic band-gap structure.

25. (Previously Presented) A photonic band-gap device comprising:

two or more first silicon layers; and

two or more second silicon layers, wherein each of the first silicon layers adjacent one of the second silicon layers forms a period and wherein each of the second silicon layers has a higher porosity then the adjacent first silicon layer;

wherein two or more of the periods adjacent each other form a stack, wherein the stack is heated and oxidized to alter at least one temperature dependent optical property of the stack, the property comprising a reflectance spectra of the stack which has a maximum shift of about +/- 0.5 nm for a temperature change up to about 100 degrees Centigrade.

26. (Original) The device as set forth in claim 19 wherein one of the first and second silicon layers has a higher refractive index than the other one of the first and second silicon layers in each of the periods.

27. (Previously Presented) The device as set forth in claim 19 wherein the stack is oxidized in at least one of an atmosphere of N_2 and an atmosphere of O_2.

28. (Previously Presented) The device as set forth in claim 19 wherein the stack is annealed to a temperature of at least 300 degrees Celsius.

29. (Previously Presented) The method as set forth in claim 1 wherein the oxidizing further comprises oxidizing the photonic band-gap structure in a mixture comprising N_2 and O_2.

30. (Previously Presented) The system as set forth in claim 10 wherein the oxidizing system oxidizes the at least a portion of the photonic band-gap structure in a mixture comprising N_2 and O_2.

31. (Previously Presented) The device as set forth in claim 19 wherein the stack is oxidized in a mixture comprising N_2 and O_2.

32. (New) The method as set forth in claim 1 wherein the at least one temperature dependent optical property comprises a reflectance spectra of the photonic band-gap structure which has a maximum shift of about +/- 0.5 nm for a temperature change up to about 100 degrees Centigrade.

33. (New) The system as set forth in claim 10 wherein the at least one temperature dependent optical property comprises a reflectance spectra of the photonic band-gap structure which has a maximum shift of about +/- 0.5 nm for a temperature change up to about 100 degrees Centigrade.

34. (New) The device as set forth in claim 19 wherein the at least one temperature dependent optical property comprises a reflectance spectra of the photonic band-gap structure which has a maximum shift of about +/- 0.5 nm for a temperature change up to about 100 degrees Centigrade.

35. (New) The method as set forth in claim 1 further comprising controlling the annealing including the first, second and third controlled periods of time and the oxidizing to control the alteration of the at least one temperature dependent optical property of the photonic band-gap structure.

36. (New) The system as set forth in claim 10 further comprising a control system that controls the annealing system including the first, second and third controlled periods of time and the oxidizing system to control the alteration of the at least one temperature dependent optical property of the photonic band-gap structure.